

## Claims

1. A method for determining a reference level for automatic gain control of a radio frequency signal to be received, particularly having a varying strength, in which method radio blocks are received on a logical packet data traffic channel of a signal, which radio blocks have been transmitted with a predetermined transmission power and by using a predetermined way of controlling the transmission power, wherein said reference level is continuously determined on the basis of correctly received, *i.e.*, valid radio blocks, wherein the reference level is corrected on the basis of the signal strength measured during the reception of each valid radio block.
2. A method according to claim 1, wherein the reference level is corrected by calculating its running average with respect to time.
3. A method according to claim 2, wherein the running average is calculated by using filtering with a variable length, wherein the period, during which the average is calculated, is preferably kept constant, depending on the frequency of occurrence of valid radio blocks.
4. A method according to claim 2, wherein by using the running average, a predetermined number of valid radio blocks is calculated as a forgetting factor.
5. A method according to claim 1, wherein a signal of a broadcasting channel is received, which is transmitted at a predetermined constant transmission power, and that the reference level is corrected on the basis of the signal strength measured during the reception of this signal, if no valid radio blocks have been received during the predetermined period of time.
6. A method according to claim 5, wherein the running average of the signal strength of the broadcasting channel is calculated with respect to time.

7. A method according to claim 6, wherein filtering with a variable length is calculated by using the running average of the strength.

5 8. A method according to claim 5, wherein said broadcasting channel is the BCCH channel of the GPRS network.

10 9. A method according to claim 5, wherein the signal strength is determined by using samples taken from the signal of the broadcasting channel.

10 10. A method according to claim 1, wherein for the determination, such valid radio blocks are selected which are received at intervals of a predetermined period, for synchronization of the receiver and the communication network.

15 11. A method according to claim 5, wherein said period of time is a period comprising 18 successive radio blocks in the GPRS network.

20 12. A method according to claim 5, wherein on the basis of the transmission power information contained in the valid radio block, the measured signal strength of the radio block is compensated to a predetermined level which is proportional to the signal strength of the broadcasting channel, when the transmission power levels of the radio blocks vary.

25 13. A method according to claim 1, wherein the address information and the transmission power information contained in the valid radio block are interpreted to determine the recipient of the radio block and the used transmission power, respectively.

30 14. A method according to claim 13, wherein for the determination, such valid radio blocks are selected which are addressed to a specific recipient and which contain transmission power information, when the transmission power varies between recipients and the transmission powers of the radio blocks vary.

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15. A method according to claim 13, wherein for the determination, such valid radio blocks are selected which are addressed to different recipients and which contain transmission power information, when the transmission power remains the same among recipients and the transmission powers of the radio blocks vary.

16. A method according to claim 1, wherein for the determination, such valid radio blocks are selected which are addressed to different recipients, when the transmission power remains the same among recipients and the transmission powers of the radio blocks remain constant.

17. A method according to claim 1, wherein the reference level is corrected on the basis of the maximum signal strength measured from incorrectly received radio blocks, if, within a predetermined period of time, no valid radio blocks have been received during the maximum interval of occurrence of the reference blocks.

18. A method according to claim 1, wherein the reference level is corrected by a predetermined value, when clipping has occurred in the reception of a valid radio block when the signal strength is below a set minimum limit or above a set maximum limit.

19. A method according to claim 1, wherein radio blocks are received on two or more logical packet data traffic channels, which radio blocks have been transmitted at a predetermined transmission power and by using a predetermined method of transmission power control, and that said reference level is continuously determined on the basis of valid radio blocks and for each of said channels.

20. A method according to claim 1, wherein a wireless communication unit is used to receive valid radio blocks transmitted by a base transceiver station of a packet switched communication network based on a cellular system.

21. A method according to claim 20, wherein the strength level of the analog signal received in said unit is measured, and the signal gain is corrected on the basis of the determined reference level.

5 22. A method according to claim 1, wherein said packet data traffic channel is the PDTCH/D channel of the GPRS network.

10 23. A method according to claim 1, wherein said control method is constant power control used by the GPRS network in downlink data transmission, power control according to mode A, or power control according to mode B.

15 24. A device for determining a reference level for automatic gain control of a radio frequency signal to be received, particularly having a varying strength, which device comprises means for receiving, on a logical packet data traffic channel of a signal, radio blocks which have been transmitted with a predetermined transmission power and by using a predetermined way of controlling the transmission power, wherein the device comprises means for continuous determination of  
20 said reference level on the basis of correctly received. *i.e.*, valid radio blocks, wherein said means are arranged to correct the reference level on the basis of the signal strength measured during the reception of each valid radio block.

25 25. A device according to claim 24, wherein the device comprises means for receiving the signal of a broadcasting channel, which has been transmitted at a predetermined constant transmission power, and that said means are arranged to correct the reference level on the basis of the signal strength measured during the reception of this  
30 signal, if no valid radio blocks have been received during the predetermined period of time.

35 26. A device according to claim 24, wherein the device comprises means for measuring the strength level of a received analog signal, and that said means are arranged to correct the signal gain on the basis of the determined reference level at predetermined intervals.

27. A device according to claim 24, wherein said device is a wireless communication unit operating in the GPRS network.

5 28. A device according to claim 25, wherein the device comprises means for measuring the strength level of a received analog signal, and that said means are arranged to correct the signal gain on the basis of the determined reference level at predetermined intervals.

10 29. A method according to claim 3, wherein by using the running average, a predetermined number of valid radio blocks is calculated as a forgetting factor.

15 30. A method according to claim 5, wherein for the determination, such valid radio blocks are selected which are received at intervals of a predetermined period, for synchronization of the receiver and the communication network.

20 31. A method according to claim 10, wherein said period of time is a period comprising 18 successive radio blocks in the GPRS network.

25 32. A method according to claim 10, wherein on the basis of the transmission power information contained in the valid radio block, the measured signal strength of the radio block is compensated to a predetermined level which is proportional to the signal strength of the broadcasting channel, when the transmission power levels of the radio blocks vary.

30 33. A method according to claim 10, wherein the address information and the transmission power information contained in the valid radio block are interpreted to determine the recipient of the radio block and the used transmission power, respectively.